

RECEIVED
CENTRAL FAX CENTER

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

JUN 20 2006

Page 1 of 24

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Appl. No. : 09/976,339
Applicant(s) : CHOI et al.
Filed : 12 Oct 2001
TC/A.U. : 2142
Examiner : REID, Cheryl M.
Atty. Docket : US-010256

**CERTIFICATE OF MAILING OR
TRANSMISSION**

I certify that this correspondence is being:
[] deposited with the U.S. Postal Service with
sufficient postage as first-class mail in an
envelope addressed to the Commissioner for
Patents, P.O. Box 1450, Alexandria, VA
22313-1450.

[X] transmitted by facsimile to the U.S. Patent
and Trademark Office at 571-273-8300.

On: 20 June 2006

By: 

Title: **DYNAMIC FREQUENCY SELECTION SCHEME FOR IEEE 802.11 WLANS**

Mail Stop: **APPEAL BRIEF - PATENTS**
Commissioner for Patents
Alexandria, VA 22313-1450

APPEAL UNDER 37 CFR 41.37

Sir:

This is an appeal from the decision of the Examiner dated 23 December 2005,
finally rejecting claims 1-25 of the subject application.

This paper includes (each beginning on a separate sheet):

1. Appeal Brief, with appendices; and
2. Credit card authorization in the amount of \$500.

06/21/2006 EFLDRES 00000009 09976339

01 FC:1402

500.00 DP

US-010256 Appeal Brief 5.C23

Atty. Docket No. **US-010256**

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 2 of 24

APPEAL BRIEF

I. REAL PARTY IN INTEREST

The above-identified application is assigned, in its entirety, to
Koninklijke Philips Electronics N. V.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any co-pending appeal or interference that will directly affect, or be directly affected by, or have any bearing on, the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-25 are pending in the application.

Claims 1-25 stand rejected by the Examiner under 35 U.S.C. 103(a).

These rejected claims are the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendments were filed subsequent to the final rejection in the Office Action dated 23 December 2005. A reply to the final rejection was filed on 8 February 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This application addresses a method and system for dynamically selecting a communication channel for use by an access point (AP) and a plurality of wireless stations (STAs), with specific application to IEEE 802.11 wireless local area networks (WLANs).

As claimed in independent claim 1, the invention comprises a method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

**Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005**

Page 3 of 24

(a) determining whether a new channel to be used by all of the plural STAs is needed (page 8, lines 5-15);

(b) measuring a channel quality of a plurality of frequency channels by an STA of the plural STAs (page 11, line 19 – page 14, line 21);

(c) reporting from said STA to said AP of a list of candidate channels including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of channels measured by said STA (page 11, lines 8-14); and,

(d) selecting one of said candidate channels based on said channel quality report for use in communication between said AP and the plural STAs (FIG. 7; page 16, lines 1-21).

As claimed in independent claim 7, the invention comprises a method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

(a) determining whether a new channel to be used by all of the plural wireless STAs is needed (page 8, lines 5-15);

(b) requesting, by said AP, a channel quality measure to at least one of the plural STAs (page 9, lines 14-19);

(c) transmitting a channel quality report of a plurality of frequency channels from said at least one of the plural STA to said AP, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of channels measured by said plural STAs (page 11, lines 9-17);

(d) determining whether a signal from an adjacent BSS is received by an STA of said plural STAs (page 11, line 19 – page 12, line 8); and,

(e) if said adjacent BSS signal or an interfering signal of unknown type is detected, selecting a new channel based on least interference to said channel quality or meeting other regulatory requirement for use in communication between said AP and said plural STAs according to the value of said RSSI (FIG. 7; page 16, lines 1-21).

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

**Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005**

Page 4 of 24

As claimed in independent claim 9, the invention comprises a method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

(a) determining whether a new channel to be used by said plurality of wireless STAs is needed (page 8, lines 5-15);

(b) requesting, by said AP, a channel quality measure to at least one of said plurality of STAs (page 9, lines 14-19);

(c) transmitting a channel quality report of a plurality of frequency channels from said at least STA to said AP, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all channels measured by said plurality of STAs (page 11, lines 9-17);

(d) determining whether a signal from an adjacent BSS is received by said plurality of STAs (page 11, line 19 – page 12, line 8);

(e) if said adjacent BSS signal or interfering signals of unknown type is detected, selecting a new channel based on the least interference to said channel quality or meeting other regulatory requirement for use in communication between said AP and said plurality of STAs according to the value of said RSSI (FIG. 7; page 16, lines 1-21); and

switching said plurality of STAs to said new channel (page 17, lines 12-21).

As claimed in independent claim 13, the invention comprises a method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within a coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

(a) determining whether a new channel to be used by all of the plural STAs is needed (page 8, lines 5-15);

(b) determining whether a signal from an adjacent BSS is received by said plural STAs (page 11, line 19 – page 12, line 8);

US-010256 Appeal Brief 5.C23

Atty. Docket No. **US-010256**

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 5 of 24

(c) measuring a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all said channels scanned by said plural STAs to said AP (page 12, line 10 – page 14, line 21);

(d) measuring an interference level caused by another communication system based on a periodic presence of on/off busy CCA signals (page 13, lines 1-7); and

(e) selecting said new channel representing the least interference signal level based on said measured RSSI, CCA, and periodic presence of CCA busy signals (FIG. 7; page 16, lines 1-21).

As claimed in independent claim 17, the invention comprises a system (FIG. 2) for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the system comprising:

means for determining whether a new channel to be used by all the plural STAs is needed (22; page 8, lines 5-15);

means for requesting, by said AP, a channel signal quality measure to at least one of said plural STAs (24; page 9, lines 14-19);

means for transmitting a channel quality report of a plurality of frequency channels between said AP and at least one of said plurality of STAs, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all channels measured by said plural STAs (24; FIG. 6(b); page 11, lines 9-17);

means for determining whether a signal from an adjacent BSS is received by said plural STAs (22; page 11, line 19 – page 12, line 8); and,

means for selecting a new channel based on the least interference to said channel quality for use in communication between said AP and said plural STAs if said adjacent BSS signal is detected (22; FIG. 7; page 16, lines 1-21).

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 6 of 24

As claimed in dependent claim 21, the invention includes the system of claim 17, further comprising:

means for determining whether an interference signal level caused by another communication device is detected based on a periodic absence of any 802.11 frame reception for a predetermined time period (page 13, lines 1-7); and,

means for selecting said new channel based on whether the channel causes the least interference to another communication device (FIG. 7; page 16, lines 1-21).

As claimed in independent claim 22, the invention comprises a system (FIG. 2) for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the system comprising:

a memory (28, 30, 32) for storing a computer-readable code; and,

a processor (22) operatively coupled to said memory, said processor configured to:

(1) determine whether a new channel to be used by all of the plural STAs is needed (page 8, lines 5-15);

(2) determine whether a signal from an adjacent BSS is received by said plural STAs (page 11, line 19 – page 12, line 8);

(3) measure a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all said channels scanned by said plurality of STAs to said AP (page 12, line 10 – page 14, line 21);

(4) measure an interference level caused by another communication system based on a periodic absence of any 802.11 frame reception for a predetermined time period (page 12, line 10 – page 13, line 7; page 14, lines 11-21); and,

(5) select said new channel representing the least interference signal level based on said measured RSSI, CCA, and periodic presence of CCA busy signals (FIG. 7; page 16, lines 1-21).

Appl. No. 09/976,339
 Appeal Brief in Response
 to final Office action of 23 December 2005

Page 7 of 24

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-20 stand rejected under 35 U.S.C. 103(a) over Cerwall et al. (USP 6,868,277, hereinafter Cerwall) and Marcoccia et al. (USP 6,169,761, hereinafter Marcoccia).

Claims 21-24 stand rejected under 35 U.S.C. 103(a) over Cerwall, Marcoccia, and Kobylinski et al. (USP 6,694,138, hereinafter Kobylinski).

Claim 25 stands rejected under 35 U.S.C. 103(a) over Cerwall, Marcoccia, and Chuang ("Performance Issues and Algorithms for Dynamic Channel Assignment").

VII. ARGUMENT

Claims 1-20 stand rejected under 35 U.S.C. 103(a) over Cerwall and Marcoccia

MPEP 2142 states:

"To establish a *prima facie* case of obviousness ... the prior art reference (or references when combined) *must teach or suggest all the claim limitations*... If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness."

Claims 1-6

Claim 1, upon which claims 2-6 and 25 depend, claims a method that includes:

- (a) determining whether a new channel to be used by all of plural STAs is needed;
- (b) measuring a channel quality of a plurality of frequency channels by an STA of the plural STAs;
- (c) reporting from the STA to the AP of a list of candidate channels including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of channels measured by said STA; and,
- (d) selecting one of the candidate channels based on the channel quality report for use in communication between the AP and the plural STAs.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 8 of 24

With regard to (a), the Office action asserts that Cerwall teaches determining whether a new channel to be used by all of the plural STAs is needed at column 5, lines 4-5. This is incorrect. Cerwall teaches a wireless system comprising a plurality of mobile stations (MS in FIG. 1), but does not teach determining whether a new channel is needed for use by all of the plural stations. Cerwall specifically teaches determining a channel for each mobile station individually. At the cited text, Cerwall specifically teaches that a mobile station monitors a plurality of channels in an idle mode. During a call set-up, the mobile station communicates the channel measurements to the base station controller (BSC), and the base station uses these measurements to assign a channel for this particular mobile station's use. Cerwall does not teach determining when a new channel is needed by all of the plural mobile stations, as specifically claimed in claim 1.

With regard to (d), the Office action asserts that Cerwall teaches selecting a channel for use in communication between the access point and the plural mobile stations at column 9, lines 1-15. This is incorrect. At the cited text, Cerwall specifically teaches selecting a channel assignment for a single mobile station 110. Cerwall does not teach selecting a channel for communication between the base station controller and plural mobile stations, as specifically claimed in claim 1.

Because Cerwall fails to teach determining whether a new channel is needed for communication between an access point and plural stations, and because Cerwall fails to teach selecting a channel for communications between the access point and the plural stations, the applicants respectfully maintain that the Office action has failed to establish a prima facie case of obviousness, and therefore the rejection of claims 1-6 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 9 of 24

Claims 7-8 and 10-12

Claim 7, upon which claims 8 and 10-12 depend, claims a method that includes:

(a) determining whether a new channel to be used by all of a plural wireless STAs is needed;

(b) requesting, by an AP, a channel quality measure to at least one of the plural STAs;

(c) transmitting a channel quality report of a plurality of frequency channels from the at least one of the plural STA to the AP, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of channels measured by the plural STAs;

(d) determining whether a signal from an adjacent BSS is received by an STA of the plural STAs; and,

(e) if the adjacent BSS signal or an interfering signal of unknown type is detected, selecting a new channel based on least interference to the channel quality or meeting other regulatory requirement for use in communication between the AP and the plural STAs according to the value of said RSSI.

With regard to (a), the Office action relies upon Cerwall for teaching determining whether a new channel is needed for use by all of the plural wireless stations. As discussed above with regard to claim 1, Cerwall specifically teaches assessing each mobile station's need for a channel individually, and does not teach determining whether a new channel is needed for use by all of the plural mobile stations.

With regard to (d), the Office action asserts that Cerwall teaches determining whether a signal from an adjacent base station is received by a mobile station at column 9, lines 16-30. The applicants respectfully disagree with this assertion. At the cited text, Cerwall teaches assessing the interference measures to select a channel for assignment to a mobile station, and does not address determining whether such interference is caused by a signal from an adjacent base station, as specifically claimed in claim 7.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 10 of 24

With regard to (e), the Office action asserts that Cerwall teaches selecting a new channel based on least interference to channel quality or meeting other regulatory requirement for use in communication between the AP and the plural STAs according to the value of RSSI at column 6, lines 45-60. This is incorrect. At the cited text, Cerwall teaches selecting a channel to assign to a single mobile station, and does not teach selecting a channel for use in communication between the base station and the plural mobile stations, as specifically claimed in claim 7.

Because Cerwall fails to teach determining whether a new channel is needed for communication between an access point and plural stations, and because Cerwall fails to teach determining whether a signal from an adjacent base station is received by a mobile station, and because Cerwall fails to teach selecting a channel for communications between the access point and the plural stations, the applicants respectfully maintain that the Office action has failed to establish a prima facie case of obviousness. Because Cerwall fails to teach the elements relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claims 7-8 and 10-12 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

Claim 9

Claim 9 includes all of the limitations of claim 7, plus the step of switching the plurality of STAs to the new channel.

As noted above, Cerwall specifically teaches switching each mobile station individually to the determined channel for that mobile station. The Office action asserts that because Cerwall's system is capable of switching one mobile station to a determined channel, it is capable of changing plural stations to a determined channel. The applicants respectfully note that the criterion for establishing a prima facie case of obviousness is not whether a particular modification can be made to a prior art system, but rather, whether the prior art suggests the modification. The applicants respectfully maintain that the prior art neither teaches nor suggests switching a plurality of stations to a new channel, as specifically claimed in claim 9.

US-010256 Appeal Brief 5.C23

Atty. Docket No. **US-010256**

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 11 of 24

Because Cerwall fails to teach determining whether a new channel is needed for communication between an access point and plural stations, and because Cerwall fails to teach determining whether a signal from an adjacent base station is received by a mobile station, and because Cerwall fails to teach selecting a channel for communications between the access point and the plural stations, and because Cerwall fails to teach switching the plurality of stations to the selected channel, the applicants respectfully maintain that the Office action has failed to establish a prima facie case of obviousness. Because Cerwall fails to teach the elements relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claim 9 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

Claims 13-16

Claim 13, upon which claims 14-16 depend, claims a method that includes:

- (a) determining whether a new channel to be used by all of plural STAs is needed;
- (b) determining whether a signal from an adjacent BSS is received by the plural STAs;
- (c) measuring a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all the channels scanned by the plural STAs to an AP;
- (d) measuring an interference level caused by another communication system based on a periodic presence of on/off busy CCA signals; and
- (e) selecting the new channel representing the least interference signal level based on the measured RSSI, CCA, and periodic presence of CCA busy signals.

As noted above with regard to claims 1 and 7, Cerwall fails to teach elements (a), (b), and (e).

With respect to (d), the Office action asserts that Marcoccia teaches measuring an interference level caused by another communication system based on a periodic presence of on/off busy CCA signals at column 3, lines 25-40. This is

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 12 of 24

incorrect. At the cited text, Marcoccia is silent with regard to detecting or measuring a periodic presence of on/off busy CCA signals, as specifically claimed in claim 13.

Because Cerwall and Marcoccia fail to teach the elements relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claims 13-16 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

Claims 17-21

Claim 17, upon which claims 18-21, claims a system that includes:

means for determining whether a new channel to be used by all of plural STAs is needed;

means for requesting, by an AP, a channel signal quality measure to at least one of the plural STAs;

means for transmitting a channel quality report of a plurality of frequency channels between the AP and at least one of the plurality of STAs, the channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all channels measured by the plural STAs;

means for determining whether a signal from an adjacent BSS is received by said plural STAs; and,

means for selecting a new channel based on the least interference to said channel quality for use in communication between the AP and the plural STAs if the adjacent BSS signal is detected.

The Office action relies upon the basis for rejecting claim 1 to support the rejection of claim 17.

As noted above, Cerwall fails to teach means for determining whether a new channel is needed for use by all of the plural STAs, fails to teach means for determining whether a signal from an adjacent BSS is received by the plural STAs, and fails to teach means for selecting a new channel based on the least interference to said channel quality for use in communication between the AP and the plural STAs.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief In Response
to final Office action of 23 December 2005

Page 13 of 24

Because Cerwall fails to teach the elements relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claims 17-20 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

**Claims 21-24 stand rejected under 35 U.S.C. 103(a)
over Cerwall, Marcoccia, and Kobylinski**

Claim 21

Claim 21 is dependent upon claim 17, discussed above, and includes:

means for determining whether an interference signal level caused by another communication device is detected based on a periodic absence of any 802.11 frame reception for a predetermined time period; and,

means for selecting said new channel based on whether the channel causes the least interference to another communication device.

The applicants traverse this rejection based on the remarks above regarding claim 17 and Cerwall and Marcoccia, and based on the following remarks.

The Office action asserts that Kobylinski teaches determining whether an interference signal level caused by another communication device is detected based on a periodic absence of any 802.11 frame reception for a predetermined time period at column 4, lines 5-15. This is incorrect. At the cited text, Kobylinski teaches that each mobile station is assigned a time slot within a frame, and does not address detecting interference based on a periodic absence of any 802.11 frame reception for a predetermined time period, as specifically claimed in claim 21.

Because Cerwall and Kobylinski fail to teach the elements relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claim 21 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 14 of 24

Claims 22-24

Claim 22, upon which claims 23 and 24 depend, claims a system that includes a processor that is configured to:

- (1) determine whether a new channel to be used by all of plural STAs is needed;
- (2) determine whether a signal from an adjacent BSS is received by the plural STAs;
- (3) measure a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all said channels scanned by said plurality of STAs to said AP;
- (4) measure an interference level caused by another communication system based on a periodic absence of any 802.11 frame reception for a predetermined time period; and,
- (5) select said new channel representing the least interference signal level based on said measured RSSI, CCA, and periodic presence of CCA busy signals.

The Office action relies on the basis of the rejection of claim 7 to support the rejection of claim 22. The applicants traverse this rejection based on the remarks above regarding claim 7 and Cerwall and Marcoccia, and based on the following remarks.

The Office action asserts that Kobylinski teaches measuring an interference level caused by another communication system based on a periodic absence of any 802.11 frame reception for a predetermined time period at column 4, lines 5-15. As noted above, this is incorrect. At the cited text, Kobylinski does not address measuring interference based on a periodic absence of any 802.11 frame reception for a predetermined time period, as specifically claimed in claim 22.

Because Cerwall and Kobylinski fail to teach the elements relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claims 22-24 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief In Response
to final Office action of 23 December 2005

Page 15 of 24

**Claim 25 stands rejected under 35 U.S.C. 103(a)
over Cerwall, Marcoccia, and Chuang**

Claim 25

Claim 25 is dependent upon claim 1, discussed above with regard to Cerwall and Marcoccia.

Because Cerwall fails to teach the elements of claim 1 relied upon by the Office action in this rejection, the applicants respectfully maintain that the rejection of claim 25 under 35 U.S.C. 103(a) is unfounded, per MPEP 2142.

CONCLUSIONS

Because Cerwall fails to teach determining whether a new frequency is needed for use by a plurality of mobile stations, and because Cerwall fails to teach selecting a new frequency for use by an access point and the plurality of mobile stations, the applicants respectfully request that the Examiner's rejection of claims 1-25 under 35 U.S.C. 103(a) be reversed by the Board, and the claims be allowed to pass to issue.

Additionally or alternatively, because Cerwall fails to teach determining whether a signal from an adjacent base station is received by a mobile station, the applicants respectfully request that the Examiner's rejection of claims 7-12 and 17-25 under 35 U.S.C. 103(a) be reversed by the Board, and the claims be allowed to pass to issue.

Additionally or alternatively, because Marcoccia fails to teach measuring an interference level caused by another communication system based on a periodic presence of on/off busy CCA signals, the applicants respectfully request that the Examiner's rejection of claims 13-16 under 35 U.S.C. 103(a) be reversed by the Board, and the claims be allowed to pass to issue.

US-010256 Appeal Brief 5.C23

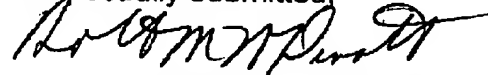
Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 16 of 24

Additionally or alternatively, because Kobylinski fails to teach measuring interference based on a periodic absence of any 802.11 frame reception for a predetermined time period, the applicants respectfully request that the Examiner's rejection of claims 21-24 under 35 U.S.C. 103(a) be reversed by the Board, and the claims be allowed to pass to issue.

Respectfully submitted,



Robert M. McDermott, Attorney
Registration Number 41,508
804-493-0707

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 17 of 24

CLAIMS APPENDIX

1. A method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:
 - (a) determining whether a new channel to be used by all of the plural STAs is needed;
 - (b) measuring a channel quality of a plurality of frequency channels by an STA of the plural STAs;
 - (c) reporting from said STA to said AP of a list of candidate channels including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of channels measured by said STA; and,
 - (d) selecting one of said candidate channels based on said channel quality report for use in communication between said AP and the plural STAs.
2. The method of claim 1, wherein said channel signal quality further includes an interference signal level caused by another communication device, said interference signal level is based on a periodic presence of on/off busy CCA signals.
3. The method of claim 1, wherein said step (d) of selecting one of said candidate channels is based on the least interference to said channel quality or meeting other regulatory requirements for use in communication between said AP and said plural STAs.
4. The method of claim 1, wherein said step (d) of selecting one of said candidate channels is based on whether the channel causes the least interference to another communication device or meeting other regulatory requirements.
5. The method of claim 1, further comprising the step of transmitting the selected

US-010256 Appeal Brief 5.C23

Atty. Docket No. **US-010256**

**Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005**

Page 18 of 24

channel information to said plural STAs by said AP.

6. The method of claim 1, further comprising the step of switching said plural STAs to said new channel.

7. A method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

(a) determining whether a new channel to be used by all of the plural wireless STAs is needed;

(b) requesting, by said AP, a channel quality measure to at least one of the plural STAs;

(c) transmitting a channel quality report of a plurality of frequency channels from said at least one of the plural STA to said AP, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of channels measured by said plural STAs;

(d) determining whether a signal from an adjacent BSS is received by an STA of said plural STAs; and,

(e) if said adjacent BSS signal or an interfering signal of unknown type is detected, selecting a new channel based on least interference to said channel quality or meeting other regulatory requirement for use in communication between said AP and said plural STAs according to the value of said RSSI.

8. The method of claim 7, further comprising the step of communicating information about said new channel from said AP to said plural STAs.

9. A method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a

**Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005**

Page 19 of 24

basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

- (a) determining whether a new channel to be used by said plurality of wireless STAs is needed;
- (b) requesting, by said AP, a channel quality measure to at least one of said plurality of STAs;
- (c) transmitting a channel quality report of a plurality of frequency channels from said at least STA to said AP, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all channels measured by said plurality of STAs;
- (d) determining whether a signal from an adjacent BSS is received by said plurality of STAs;
- (e) if said adjacent BSS signal or interfering signals of unknown type is detected, selecting a new channel based on the least interference to said channel quality or meeting other regulatory requirement for use in communication between said AP and said plurality of STAs according to the value of said RSSI; and switching said plurality of STAs to said new channel.

10. The method of claim 7, wherein said new channel is selected if said RSSI does not exceed a predetermined threshold.

11. The method of claim 7, further comprising the steps of:

determining whether an interference signal level caused by another communication device is detected based on a periodic presence of on/off busy CCA signals; and, if so, selecting said new channel based on whether the channel, among candidate channels, causes least interference to said communication device.

12. The method of claim 7, wherein it is determined that said new channel is needed in step (a) by determining, for the following conditions, if any occurs: (1) said BSS is formed by said AP; (2) said AP or said STA experiences a bad channel condition; (3)

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 20 of 24

said BSS overlaps with an adjacent BSS; (4) no association of said STA by said AP occurs longer than a predetermined time period; and, (5) detection of another licensed operator within said BSS.

13. A method for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within a coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the method comprising the steps of:

(a) determining whether a new channel to be used by all of the plural STAs is needed;

(b) determining whether a signal from an adjacent BSS is received by said plural STAs;

(c) measuring a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all said channels scanned by said plural STAs to said AP;

(d) measuring an interference level caused by another communication system based on a periodic presence of on/off busy CCA signals; and

(e) selecting said new channel representing the least interference signal level based on said measured RSSI, CCA, and periodic presence of CCA busy signals.

14. The method of claim 13, further comprising the step of communicating information about said new channel from said AP to said plural STAs.

15. The method of claim 13, further comprising the step of switching said plural STAs to said new channel.

16. The method of claim 13, wherein determining that said new channel is needed in step (a) if one of the following condition occurs: (1) said BSS is formed by said AP; (2) said AP or said STA experiences a bad channel condition; (3) said BSS overlaps with an adjacent BSS; (4) no association of said STA by said AP occurs longer than a

**Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005**

Page 21 of 24

predetermined time period; and, (5) detection of another licensed operator within said BSS.

17. A system for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the system comprising:

means for determining whether a new channel to be used by all the plural STAs is needed;

means for requesting, by said AP, a channel signal quality measure to at least one of said plural STAs;

means for transmitting a channel quality report of a plurality of frequency channels between said AP and at least one of said plurality of STAs, said channel quality report including a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all channels measured by said plural STAs;

means for determining whether a signal from an adjacent BSS is received by said plural STAs; and,

means for selecting a new channel based on the least interference to said channel quality for use in communication between said AP and said plural STAs if said adjacent BSS signal is detected.

18. The system of claim 17, further comprising a means for communicating information about said new channel from said AP to said plural STAs.

19. The system of claim 17, further comprising a means for switching said plural STAs to said new channel.

20. The system of claim 17, wherein said new channel is selected if said RSSI exceeds a predetermined threshold.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005

Page 22 of 24

21. The system of claim 17, further comprising:

means for determining whether an interference signal level caused by another communication device is detected based on a periodic absence of any 802.11 frame reception for a predetermined time period; and,

means for selecting said new channel based on whether the channel causes the least interference to another communication device.

22. A system for dynamically selecting a communication channel between an access point (AP) and a plurality of stations (STAs) located within the coverage area of a basic service set (BSS) in a wireless local area network (WLAN), the system comprising:

a memory for storing a computer-readable code; and,

a processor operatively coupled to said memory, said processor configured to:

(1) determine whether a new channel to be used by all of the plural STAs is needed;

(2) determine whether a signal from an adjacent BSS is received by said plural STAs;

(3) measure a received signal strength indication (RSSI) and Clear Channel Assessment (CCA) busy periods of all said channels scanned by said plurality of STAs to said AP;

(4) measure an interference level caused by another communication system based on a periodic absence of any 802.11 frame reception for a predetermined time period; and,

(5) select said new channel representing the least interference signal level based on said measured RSSI, CCA, and periodic presence of CCA busy signals.

23. The system of claim 22, wherein said processor is further configured to communicate information about said new channel from said AP to said plural STAs.

US-010256 Appeal Brief 5.C23

Atty. Docket No. US-010256

**Appl. No. 09/976,339
Appeal Brief In Response
to final Office action of 23 December 2005**

Page 23 of 24

24. The system of claim 22, wherein said processor is further configured to switch said plural STAs to said new channel.

25. The method of claim 1, further comprising the step of (e) notifying said plural STAs of the selected channel by beacon transmission to switch all of said plural STAs to said selected channel.

US-010256 Appeal Brief 5.C23

Atty. Docket No. **US-010256**

**Appl. No. 09/976,339
Appeal Brief in Response
to final Office action of 23 December 2005**

Page 24 of 24

EVIDENCE APPENDIX

No evidence has been submitted that is relied upon by the appellant in this appeal.

RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have any bearing on the Board's decision in the pending appeal.

US-010256 Appeal Brief 5.C23

Atty. Docket No. **US-010256**